

QUIZ 2 - MATH 251

Friday, September 4

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points]

- (a) Determine the measure of angle $\hat{A}$ in triangle $\triangle ABC$, where $A(1, 1, 8)$, $B(4, -3, -4)$ and $C(-3, 1, 5)$. Express your answer in degrees rounded to two decimal places.

- (b) Find the projection $\text{proj}_{\mathbf{u}} \mathbf{v}$, where $\mathbf{v} = \langle 5, 6, -2 \rangle$ and $\mathbf{u}$ has initial point $P(3, -1, 0)$ and terminal point $Q(2, 3, 1)$. (Please, give an exact answer.)

2. [6 points]

- (a) Find a unit vector perpendicular to the vectors $\mathbf{u} = \langle 0, 3, -4 \rangle$ and $\mathbf{v} = \langle 1, 6, -1 \rangle$. (Please, give an exact answer.)

- (b) Find the volume of the parallelepiped with adjacent sides $\mathbf{u} = \langle 2, -3, 4 \rangle$, $\mathbf{v} = \langle 0, 1, 2 \rangle$ and $\mathbf{w} = \langle -1, 2, 0 \rangle$. (Please, give an exact answer.)